

Cachuma Project Water Rights Hearing

October 2003

Panel V

Presenter:

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Stetson Engineers

Water Supply Impacts

- Key Hydrologic Aspects of the Biological Opinion/Fish Management Plan
 - Instream Target Habitat Reaches
 - Variable Target Flows
 - Passage Release and Adaptive Management Accounts
 - Conjunctive use of Water Rights Releases
 - Ramping schedule for Water Rights Releases

Table 2- 1 Long-term Mainstem Rearing Target Flows

Lake Cachuma Storage	Reservoir Spill?	Target Flow	Target Site
> 120,000 AF	Spill > 20,000 AF	10 cfs	Highway 154 Bridge
> 120,000 AF	Spill > 20,000 AF	1.5 cfs*	Alisal Road Bridge
> 120,000 AF	If Spill is >20,000 AF in previous year	1.5 cfs*	Alisal Road Bridge**
> 120,000 AF	Spill <20,000 AF or No Spill	5 cfs	Highway 154 Bridge
< 120,000 AF	No Spill	2.5 cfs	Highway 154 Bridge
<30,000 AF	No Spill	Periodic release; ≤30AF per month	Stilling Basin and Long Pool

(Source: Lower Santa Ynez River Fish Management Plan, October 2, 2000, pg. 3-9)

** When rainbow trout/steelhead are present in the Alisal Reach.*

*** This target will be met in the year immediately following a >20,000 AF spill year.*

Project Capacity and Surcharge

- Original Cachuma Reservoir Capacity (750.0')
205,000 AF
- 1989 Survey Capacity (750'): 190,400 AF
- 2000 Survey Capacity (750.0'): 188,000 AF
- Loss of Storage Capacity: 17,000 AF
- Cachuma Reservoir Surcharge

Table 2- 4 Cachuma Reservoir Surcharge

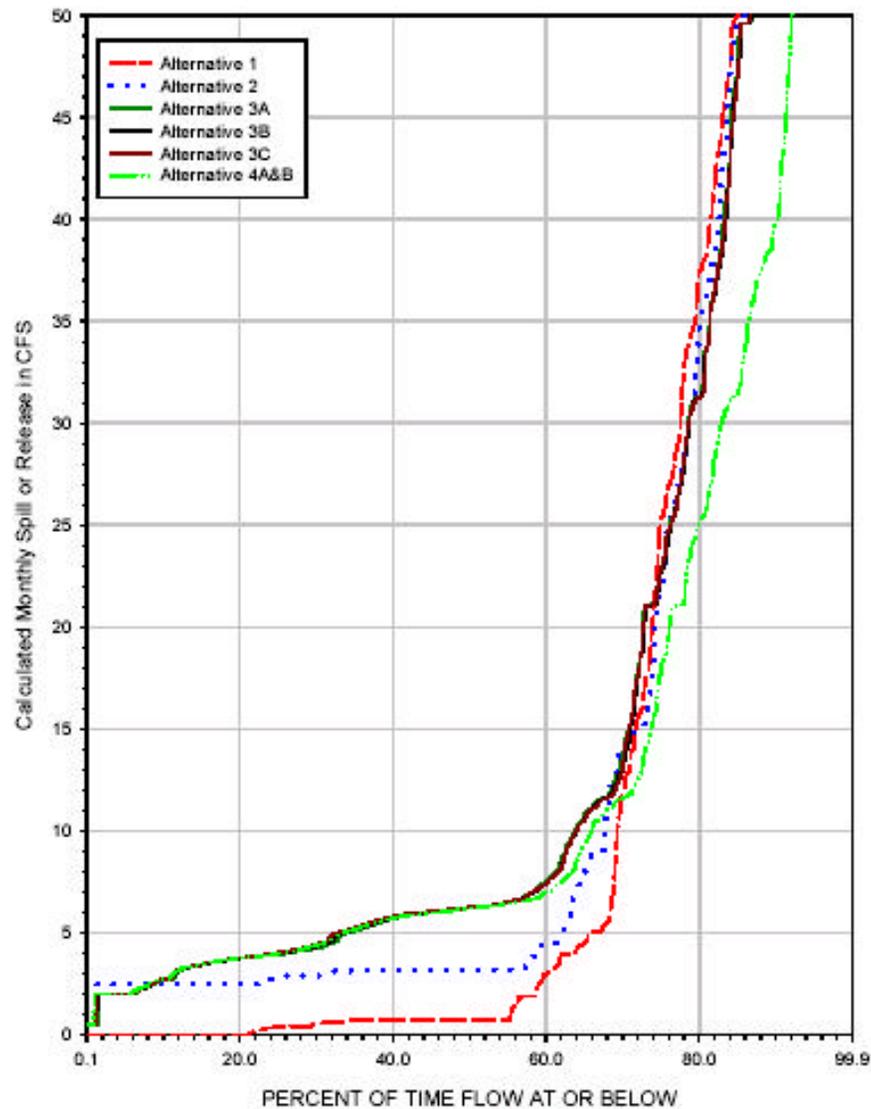
Surcharge (feet)	Maximum Elevation (feet)	Maximum Storage (acre-feet)	Storage Difference from No Surcharge (acre-feet)	Maximum Surface Area (acres)
0	750.0	188,035	0	3,048
0.75	750.75	190,336	2,301	3,076
1.8	751.8	193,585	5,550	3,113
3.0	753.0	197,343	9,308	3,155

Frequency of Flows Downstream of Cachuma Reservoir Under EIR Alternatives

- Releases at Bradbury Dam
- Flows at Hwy 154 Bridge
- Flows Above Alisal Bridge

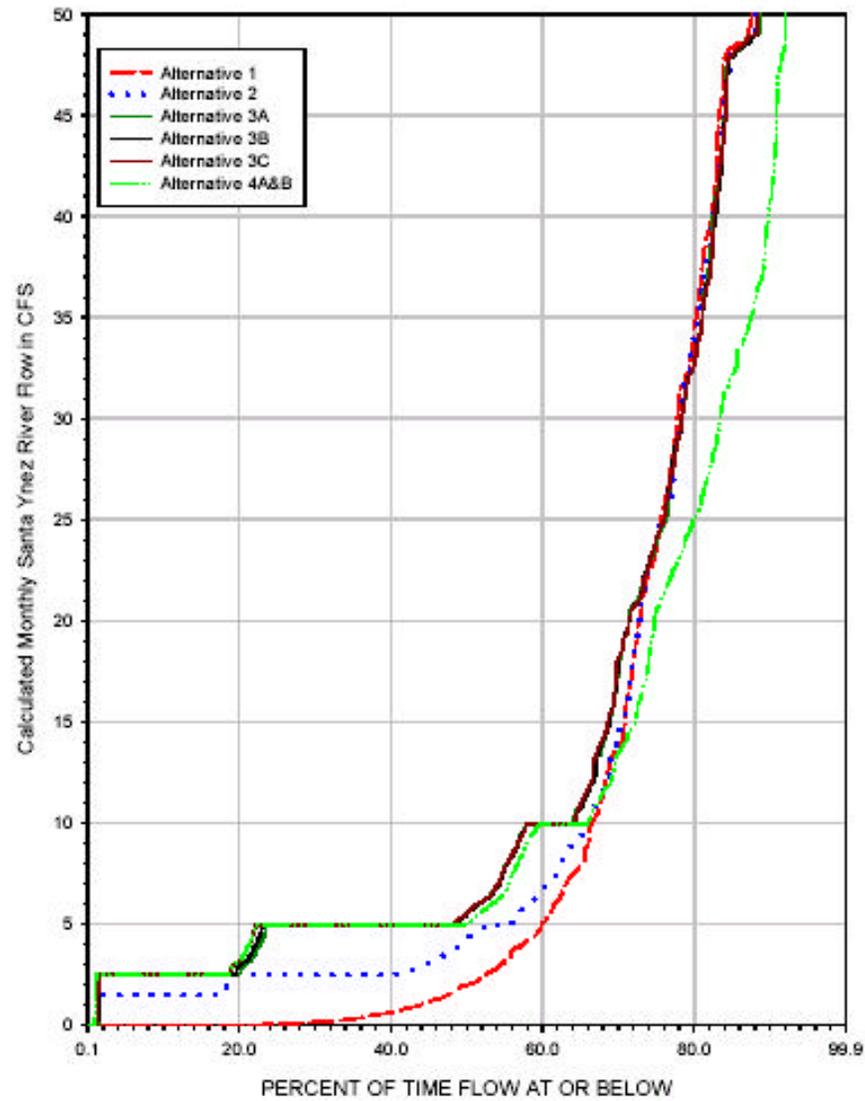
FREQUENCY OF SPILLS AND DOWNSTREAM RELEASES
FROM CACHUMA RESERVOIR
(WY 1918-1993)

FIGURE 3-1B



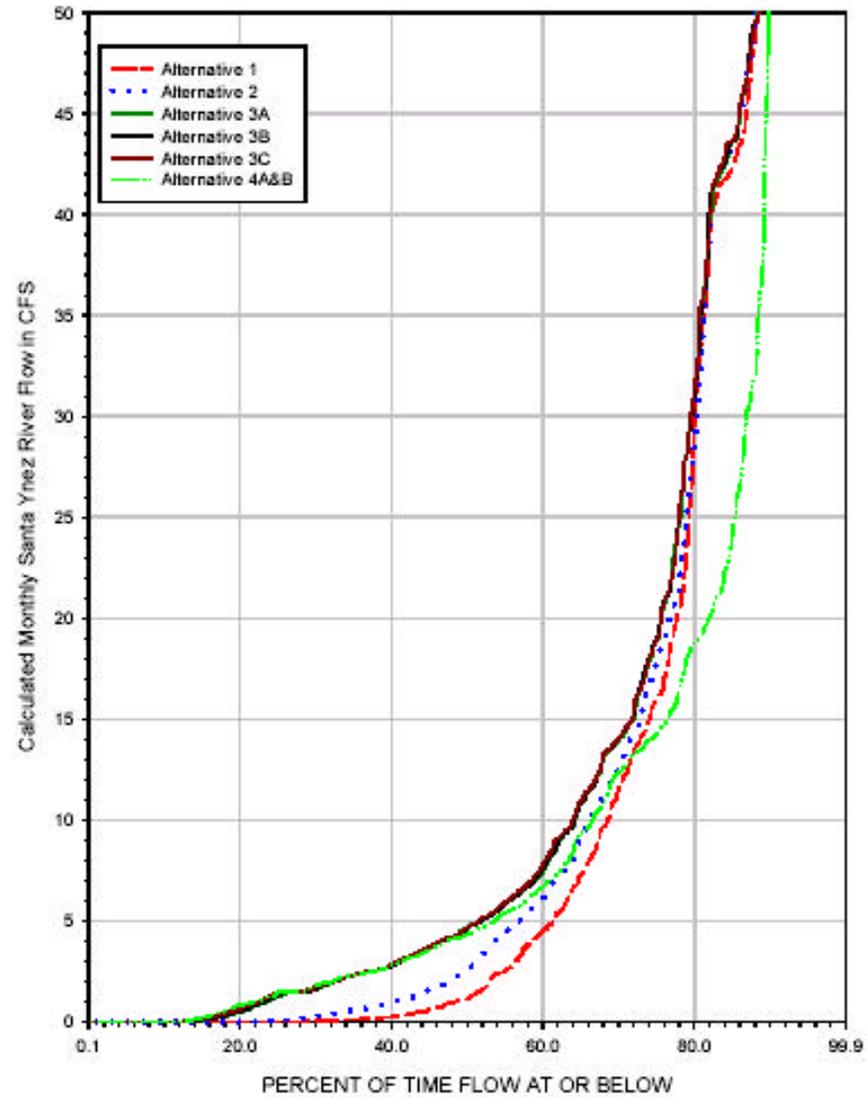
FREQUENCY OF SANTA YNEZ RIVER FLOW
AT 154 BRIDGE
(WY 1918-1993)

FIGURE 3-2B



FREQUENCY OF SANTA YNEZ RIVER FLOW
ABOVE ALISAL BRIDGE
(WY 1918-1993)

FIGURE 3-2C



Impacts of Fish Water Releases on Cachuma Project Water Supply

- Critical Drought Period (1949-1951)
- Real Time Management in Drought Period

Table 3- 1 Impacts of Fish Releases on Project Water Supply in Critical Drought Period, 1949 Through 1951 (acre-feet)

EIR Alternative	Shortage in Critical Drought Year (1951)	Shortage as Percentage of Annual Draft	Cumulative Shortage in Critical Drought Period (1949-1951)	Shortage as Percentage of Annual Draft for Three Years
1	7,070	27	14,210	18%
2	9,810	38	20,130	26%
3A	11,810	46	24,850	32%
3B	11,260	44	23,270	30%
3C	9,890	38	19,920	26%
4A&B	9,350	36	17,470	23%

Note: Annual draft from Cachuma Project is 25,714 acre-feet.

Table 3- 2 Impacts of Fish Releases on Project Water Supply in Critical Drought Period, 1949 through 1951 With Reserves Set Aside for an Additional Dry Year

(acre-feet)

EIR Alternative	Shortage in Critical Drought Year 1951	Shortage as Percentage of Annual Draft	Cumulative Shortage in Critical Drought Period 1949-1951	Shortage as Percentage of Annual Draft for Three Years
1	12,740	50	22,800	30%
2	14,790	58	27,030	35%
3A	16,500	64	31,220	40%
3B	15,940	62	29,460	38%
3C	15,380	60	27,750	36%
4A&B	15,090	59	24,530	32%

Note: Annual draft from Cachuma Project is 25,714 acre-feet.

Impacts on Water Rights Releases

Table 3- 4 Simulated Impacts to Water Right Releases for Water Years 1918-1993 (acre-feet/year)

	Alt 1	Alt 2	Alt 3A	Alt 3B	Alt 3C	Alt 4 A&B
WR89-18 Releases	6,322	6,023	5,658	5,682	5,737	5,711
Difference in WR89-18 Releases	---	-299	-660	-640	-590	-611
Percent Reduction in WR89-18 Releases	---	4.7%	10.4%	10.1%	9.3%	9.7%

Releases for the B.O. Long-Term Flow Requirements

- Releases from Cachuma Project
- Releases from WR89-18
- Leakage from the dam

Annual Releases to Meet Rearing Target Flows
of 2.5/5/10 cfs at 154 Bridge; 1.5 cfs at Alisal in spill and year after; 2.0 cfs in Hilton Creek
From Cachuma Project

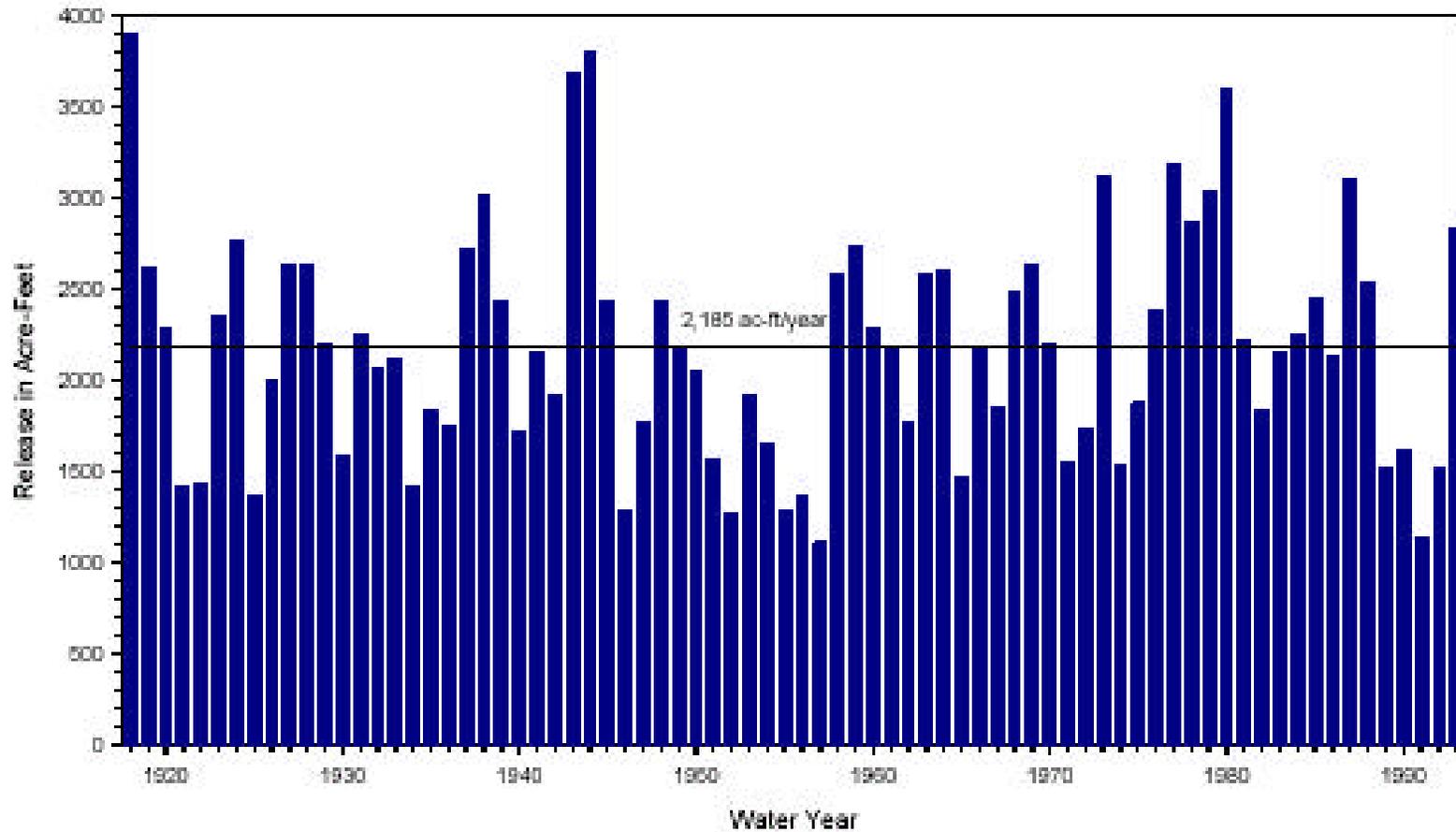


FIGURE 4-1

Annual Releases to Meet Rearing Target Flows
of 2.5/5/10 cfs at 154 Bridge; 1.5 cfs at Alisal in spill and year after; 2.0 cfs in Hilton Creek
From WR89-18

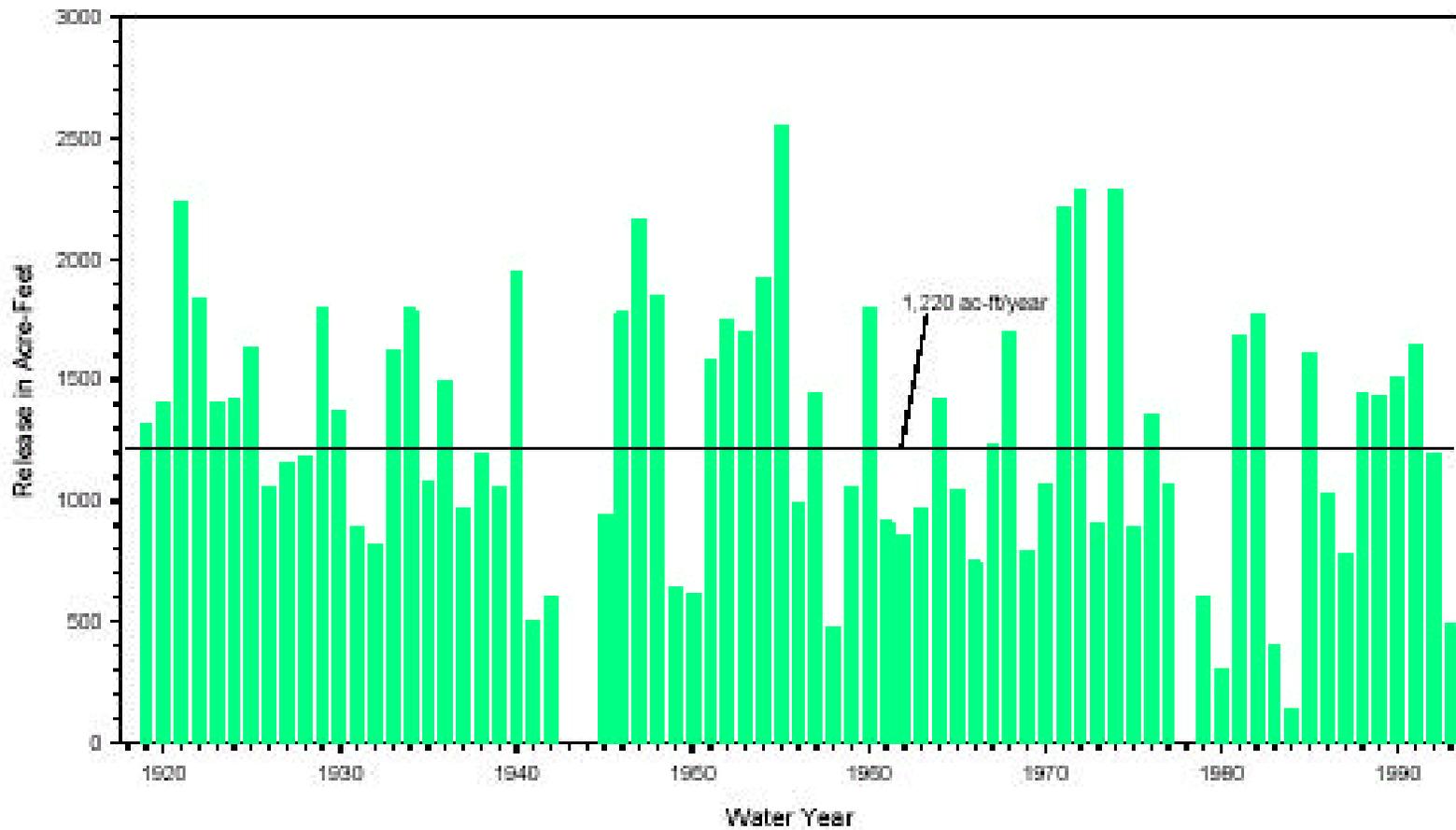


FIGURE 4.2

Annual Releases to Meet Rearing Target Flows
of 2.5/5/10 cfs at 154 Bridge; 1.5 cfs at Alisal in spill and year after; 2.0 cfs in Hilton Creek
From Cachuma Project and WR89-18

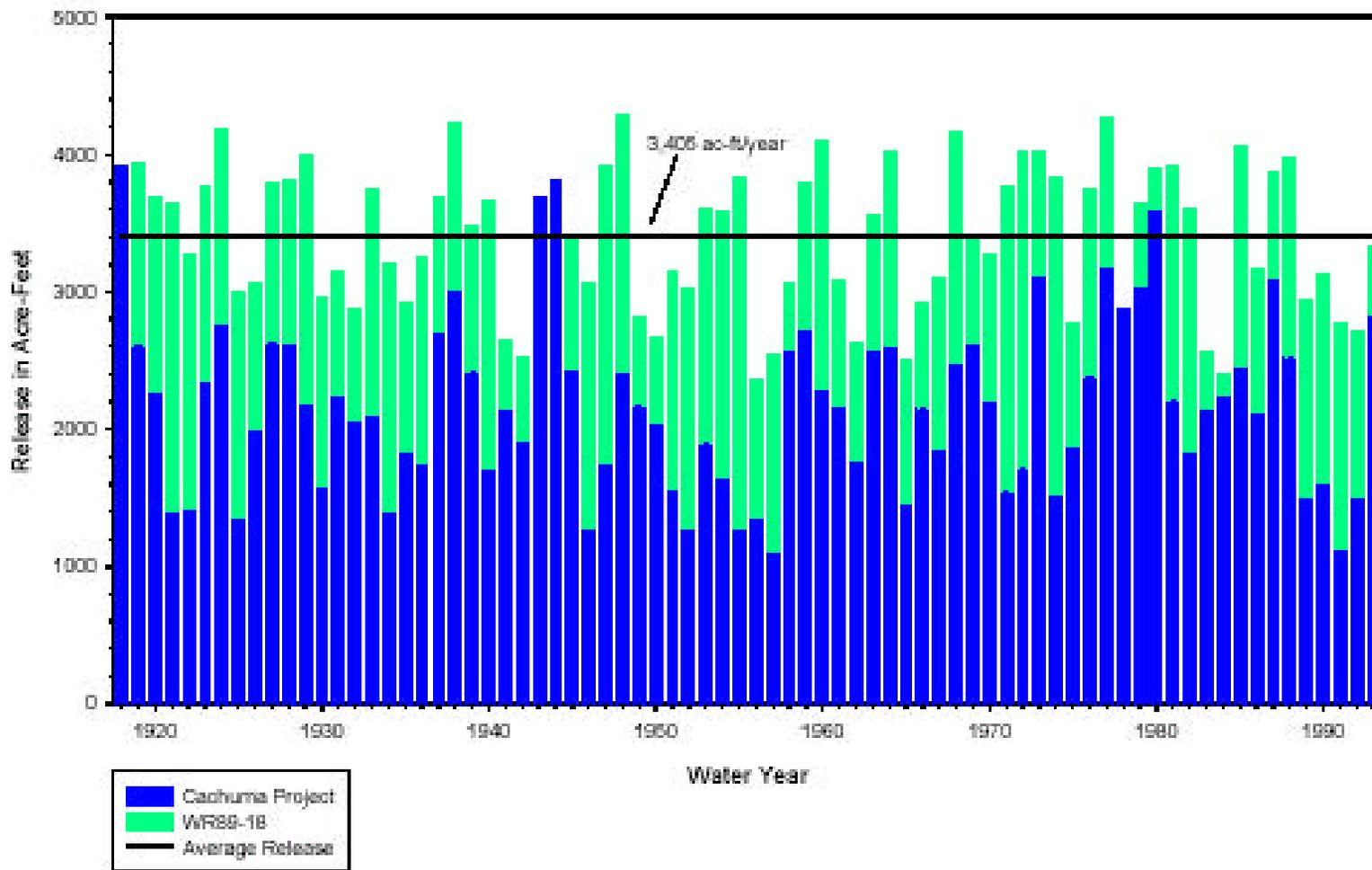


FIGURE 4-3

Table 4- 1 Releases Meeting Long-Term
Rearing Target Flows
Hydrologic Period 1918-1993

	Acre-Foot/Year
Project Releases	2,185
Water Rights Releases	1,220
Leakage from Dam	500
Total	3,905

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